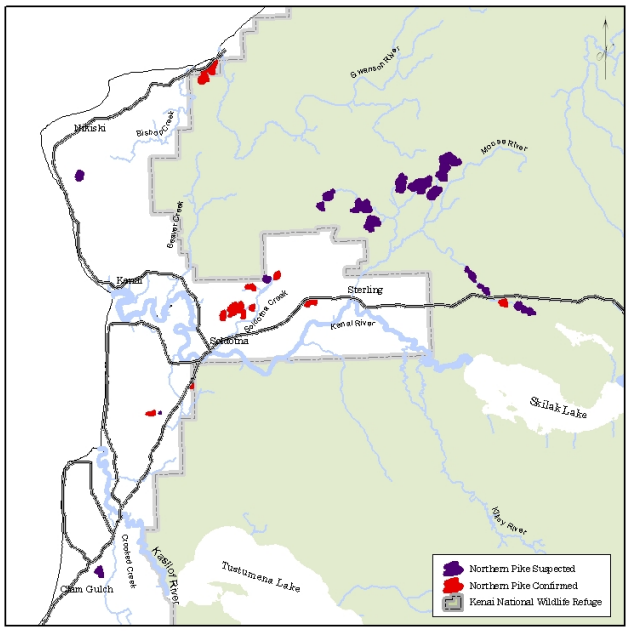
A fish, an opposable thumb, a bucket, and 18,000 years

by Mark Laker



Northern pike on the Kenai Peninsula. Graph Credit: Mark Laker/USFWS

The Kenai Peninsula began to emerge from the Wisconsin glaciation approximately 18,000 years ago. As streams and lakes developed, pioneering fish species such as salmon and trout began to settle into the newly available aquatic real estate. Multiple salmon and trout species may be found in the same river because they occupy different habitats and exhibit different life history strategies. For example, pink salmon spawn in the lower Kenai river and their offspring enter the ocean after hatching, while coho salmon spawn in the upper river with their young spending a few years in fresh water. Not only have these differences allowed multiple species to coexist, salmon have indeed thrived on the Kenai Peninsula. We have inherited a wealth of food and a renewable resource which provides a living for thousands of people, and simple enjoyment for many more.

Now enter the protagonists: a fish, a primate with an opposable thumb, and a bucket. In the mid-1970s someone made the unfortunate decision to illegally introduce northern pike into Derks Lake in the Soldotna Creek drainage. From here the pike spread quickly throughout Soldotna Creek and connected lakes including East and West Mackey, and Sevena Lake. Since the initial introduction pike have been illegally introduced into the Moose River drainage, Crooked Creek drainage, and Stormy Lake near the mouth of the Swanson River drainage. The Alaska Department of Fish and Game (ADF&G) has confirmed the presence of northern pike in 14 lakes, and they are suspected in an additional 17 lake (see map).

The northern pike (*Esox lucius*) is named after its long pointed form resembling the ancient iron-tipped weapon—the "pike." Pike can grow very large; the record for Alaska is 45 lbs. (taken near Circle). The average pike taken in Alaska weighs two to six pounds. Given the folk name "water-wolf," pike have a reputation as voracious predators, attacking prey 1/3 their size. Northern pike are circumpolar in fresh and brackish waters. You can find pike in a variety of places such as cold clear rocky waters, slow moving streams, and weedy shallow areas in lakes. Pike hunt by lying perfectly still for extended periods of time then at the right moment, they bend their body into a "C" or "S" shape and strike with impressive acceleration. Their main diet is fish which they catch sideways, kill or stun, then swallow lengthwise. Pike are also known to be an important source of mortality in young waterfowl. On the Seney National Wildlife Refuge in Michigan pike were estimated to have consumed 1.5 million waterfowl per year (10% of the waterfowl population), and fish were their primary meal.

I'll have to say after reading reports of the voracious appetites of these fish, I was wondering how any fish could coexist with them, let alone birds. Now being from Minnesota, I know that fish such as sunfish, bass, perch, crappie, muskellunge, and my personal favorite walleye, can live with pike. The explanation is simple; these fish have had hundreds of thousands to millions of years to evolve physical and behavioral adaptations to survive that quick bite from a pike. The prey fish (sunfish and crappies) are oval shaped, making it harder to bite them; pike prefer elongated fish. The other predatory fish (walleye and muskellunge) grow fast, making themselves difficult to eat, and inhabit different spawning and hunting grounds.

In their native range in Alaska, pike are not overly

destructive. Interior prey species, such as: blackfish, burbot, chinook, and sheefish, have adapted to the presence of pike. Although pike are common throughout the northern hemisphere, there are many watersheds without them. When pike are introduced into these watersheds, the results can be devastating. Pike have been shown to prefer juvenile coho, sockeye, and rainbow trout as prey species. Other prey common to the peninsula include: pink, chum and chinook juveniles, Dolly Varden, Arctic grayling, Arctic char, burbot, and sticklebacks. Because pink and chum fry swim to the ocean after hatching, they have limited availability to pike. In the Soldotna Creek drainage pike are now the dominant species, with the exception of Denise and Sevena Lakes. Historically, there were coho, rainbow trout, and Dolly Varden in healthy populations throughout the drainage. The deep waters of Denise and Sevena Lakes offer refugia for cohos and rainbow trout.

In Alaska, the Susitna River drainage has probably suffered the worst. As managers watch helplessly, areas once abundant with juvenile salmon now contain only pike. Not only are salmon important to the fisheries, but they are a keystone species effecting the health of the entire ecosystem. Although the degree of damage from pike introductions here and there can be debated, there is no argument that our native fisheries will suffer in number, diversity, and dollars.

Unfortunately there is no silver bullet to remove pike. The Southcentral Alaska Northern Pike Control Committee recently produced a comprehensive report covering the history and status of invasive northern pike in Alaska, and methods for control and removal (http://www.sf.adfg.state.ak.us/region2/pike/pike_management_plan.pdf). The Alaska Department of Fish and Game has initiated control measures such as netting pike and installing fish passage control structures. These measures help decrease the probability of further spreading, and reduce the predatory pressure on native fish and waterfowl, but do not completely remove the pike.

To eradicate a fish takes pretty extreme actions. For relatively small lakes or reservoirs the general practice has been to use a chemical treatment of a piscicide such as rotenone, or to drain the lake. The most difficult part of these actions is typically the public process. As you can imagine there have been a few public relations nightmares "You drained the what?..." However, some of these tough discussions and decisions will need to take place if we want to sustain the incredible resources from which many of us make a living, or simply live here to enjoy.

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